

CLAIMS

1. An electrolyte comprising an electrolyte composition and a matrix polymer,

5        wherein the matrix polymer is a polymer formed by polymerization of a first compound having at least two isocyanate groups and a second compound having at least two nucleophilic groups containing active hydrogen.

2. The electrolyte according to Claim 1, wherein the  
10        electrolyte composition comprises a solvent to form a gel electrolyte.

3. The electrolyte according to Claim 1, wherein the electrolyte composition comprises no solvent to form a solid electrolyte.

15        4. The electrolyte according to Claim 1, wherein the electrolyte composition comprises an ionic liquid to form a gel electrolyte.

5. The electrolyte according to Claim 1, wherein the electrolyte composition comprises a redox couple.

20        6. The electrolyte according to Claim 5, wherein the redox couple is the combination of a halogen ion and a halide ion.

7. The electrolyte according to Claim 6, wherein the halogen element of the redox couple is iodine.

25        8. A photocell comprising: a semiconductor layer composed

of semiconductor particles carrying a dye and an electrolyte layer, the layers being provided between a counter electrode and an electrode formed on a surface of a substrate,

wherein the electrolyte layer has a redox couple, an  
5 electrolyte composition, and a matrix polymer, and

the matrix polymer is a polymer formed by  
polymerization of a first compound having at least two  
isocyanate groups and a second compound having at least two  
nucleophilic groups containing active hydrogen.

10 9. The photocell according to Claim 8, wherein the  
substrate is a transparent substrate.

10. A method for manufacturing a photocell comprising the  
steps of: injecting a mixed solution between a counter  
electrode and an electrode formed on a surface of a  
15 substrate, the mixture containing a first compound having at  
least two isocyanate groups, a second compound having at  
least two nucleophilic groups containing active hydrogen,  
and an electrolyte composition having a redox couple; and  
polymerizing the first compound and the second compound.

20 11. The method for manufacturing a photocell, according  
to Claim 10, further comprising the step of forming a  
semiconductor layer composed of semiconductor particles  
carrying a dye between the electrode and the counter  
electrode.

25 12. The method for manufacturing a photocell, according

to Claim 10, wherein the polymerization is performed in accordance with the Michael addition reaction.

13. The method for manufacturing a photocell, according to Claim 10, wherein the electrolyte composition has a redox couple.

14. A method for manufacturing a photocell comprising the steps of: forming a semiconductor layer composed of semiconductor particles carrying a dye between a counter electrode and an electrode formed on a surface of a substrate; applying a first compound having at least two isocyanate groups and a second compound having at least two nucleophilic groups containing active hydrogen; and polymerizing the first compound and the second compound.